

IN THE CLAIMSListing of Claims:

- 1 1. (original) A toothbrush assembly comprising:
2 a toothbrush head having a bristle section coupled to a shaft, the shaft
3 having an encased channel extending from the bristle section to a threaded end;
4 a toothpaste chamber having a brush end for receiving the threaded end of
5 the toothbrush head and an open plunger end; and
6 a removable plunger assembly coupled to the plunger end and having a
7 plunger head extending into and sealing against an inside surface of the toothpaste
8 chamber, wherein only a surface of the plunger head is exposed to toothpaste in the
9 toothpaste chamber as the plunger head rotates within the toothpaste chamber and moves
10 laterally modifying a volume of the toothpaste chamber in response to rotating an
11 exposed portion of the plunger assembly.
- 1 2. (original) The toothbrush assembly of claim 1, wherein the brush end of the
2 toothpaste chamber has a circumferential slot for receiving an O-ring and a first cap
3 feature for engaging and retaining a cap placed over the toothbrush head.
- 1 3. (original) The toothbrush assembly of claim 2, wherein the cap has a second cap
2 feature for mating with the first cap feature and an inside surface of the cap seals against
3 an O-ring disposed in the circumferential slot preventing liquid or toothpaste left in the
4 bristles of the toothbrush head from leaking.
- 1 4. (original) The toothbrush assembly of claim 1 further comprising an adapter
2 having a toothpaste tube end for coupling to and sealing against the threads of a plurality

3 of off-the-shelf toothpaste tubes and a toothbrush end with threads mated to the brush
4 end of the toothpaste chamber.

1 5. (original) The toothbrush assembly of claim 1 further comprising a flexible tube
2 coupled to a bristle opening of the encased channel and extending to a point near a top of
3 bristles in the bristle section.

1 6. (original) The toothbrush assembly of claim 1, wherein the removable plunger
2 assembly comprises a plunger having a head end coupled to the plunger head and a shaft
3 section with a non-circular cross-section extending from the head end to a tail end,
4 wherein the shaft section has plunger threads disposed on directly opposing surface areas
5 corresponding to a circular circumference intersecting and tangential to the opposing
6 surface areas.

1 7. (original) The toothbrush assembly of claim 6 further comprising a nut threaded
2 from the tail end onto the plunger threads of the shaft section to a stop corresponding to a
3 flange on the head end, the nut engaging a stop surface on the flange determining how far
4 the plunger assembly extends into the toothpaste chamber, wherein features of the nut
5 engage features of the toothpaste chamber to prevent the nut from rotating relative to the
6 toothpaste chamber.

1 8. (original) The toothbrush assembly of claim 7 further comprising a twist knob
2 corresponding to the exposed portion of the plunger assembly and having a recess
3 receiving the tail end of the plunger and coupling to the shaft section for rotating the
4 plunger, wherein the twist knob has features for coupling the plunger assembly to the
5 open plunger end when the plunger assembly is inserted into the open plunger end of the
6 toothpaste chamber and wherein rotating the knob when the plunger assembly is sealed in
7 the toothpaste chamber rotates the plunger head within the toothpaste chamber and

8 moves the plunger head laterally within the toothpaste chamber, the plunger head
9 operating to increase an available volume of the toothpaste chamber thus pulling a
10 vacuum within the toothpaste chamber when moved towards the plunger end of the
11 toothpaste chamber and operating to decrease the available volume in the toothpaste
12 chamber thus pressurizing the toothpaste chamber when moved towards the brush end of
13 the toothpaste chamber.

1 9. (original) A toothbrush assembly comprising:

2 a toothbrush head having a bristle section coupled to a shaft, the shaft
3 having an encased channel extending from the bristle section to a threaded end;

4 a toothpaste chamber having a brush end for receiving the threaded end of
5 the toothbrush head and an open plunger end; and

6 a removable plunger assembly coupled to the plunger end and having a
7 plunger head extending into and sealing against an inside surface of the toothpaste
8 chamber, wherein the only moving part of the plunger assembly that is exposed to
9 toothpaste in the toothpaste chamber is a surface of the plunger head as the plunger head
10 moves laterally to modify a volume of the toothpaste chamber in response to rotating an
11 exposed portion of the plunger assembly.

1 10. (original) The toothbrush assembly of claim 9, wherein the brush end of the
2 toothpaste chamber has a circumferential slot for receiving an O-ring and a first cap
3 feature for engaging and retaining a cap placed over the toothbrush head.

1 11. (original) The toothbrush assembly of claim 10, wherein the cap of a second cap
2 feature for mating with the first cap feature and an inside surface of the cap seals against
3 an O-ring disposed in the circumferential slot preventing liquid or toothpaste left in the
4 bristles of the toothbrush head from leaking.

1 12. (original) The toothbrush assembly of claim 9 further comprising an adapter
2 having a toothpaste tube end for coupling to and sealing against the threads of a plurality
3 of off-the-shelf toothpaste tubes and a toothbrush end with threads mated to brush end of
4 the toothpaste chamber.

1 13. (original) The toothbrush assembly of claim 9 further comprising a flexible tube
2 coupled to a bristle opening of the encased channel and extending to a point near a top of
3 bristles in the bristle section.

1 14. (original) The toothbrush assembly of claim 9, wherein the removable plunger
2 assembly further comprises a plunger having a head end and a tubular section extending
3 from the head end to a tail end, wherein the plunger head is coupled to the head end and
4 the tail end has an end extending across an opening in the tubular section and having two
5 slots and a threaded opening.

1 15. (original) The toothbrush assembly of claim 14, wherein the removable plunger
2 assembly further comprises a chamber sleeve having two arms for inserting the two slots
3 in the plunger to prevent the plunger from rotating relative to the chamber sleeve and a
4 shaft end with features for coupling to and retaining the chamber sleeve to the toothpaste
5 chamber

1 16. (original) The toothbrush assembly of claim 15, wherein the removable plunger
2 further comprises a threaded shaft coupled to a twist knob, the threaded shaft having
3 mated threads for the threaded opening of the plunger, wherein the twist knob has
4 features for coupling to the chamber sleeve while remaining free to rotate relative to the
5 chamber sleeve while rotating the threaded shaft and wherein rotating the twist knob
6 when the plunger assembly is sealed in the toothpaste chamber moves the plunger head

7 laterally within the toothpaste chamber, the plunger head operating to increase an
8 available volume of the toothpaste chamber thus pulling a vacuum within the toothpaste
9 chamber when moved towards the plunger end of the toothpaste chamber and operating
10 to decrease the available volume in the toothpaste chamber thus pressurizing the
11 toothpaste chamber when moved towards the brush end of the toothpaste chamber.

Claims 17-20 (canceled).